IN THE CLAIMS

Please cancel claims 1-40 without prejudice or disclaimer, and substitute new claims 41-82 therefor as follows:

Claims 1-40 (Cancelled).

41. (New) A method for determining a cornering angle of a tyre fitted on a vehicle during running of said vehicle on a rolling surface, the tyre comprising an equatorial plane, comprising the steps of:

estimating a length of a contact region between said tyre and said rolling surface, said length being measured at a distance from the equatorial plane;

estimating a load exerted on said tyre;

estimating a camber angle to which said tyre is subjected; and

deriving the cornering angle from said camber angle, tyre load and contact region length.

42. (New) The method according to claim 41, wherein said step of measuring a length of a contact region comprises the step of acquiring a first acceleration signal.

43. (New) The method according to claim 42, further comprising a step of low-pass filtering said first signal.

44. (New) The method according to claim 42, wherein said step of acquiring a first acceleration signal comprises acquiring a tangential acceleration signal.

45. (New) The method according to claim 44, wherein the step of acquiring a first acceleration signal comprises measuring a distance between a maximum value and a minimum value of said first signal.

46. (New) The method according to claim 42, wherein said step of acquiring a first acceleration signal comprises acquiring a radial acceleration signal.

47. (New) The method according to claim 46, wherein the step of acquiring a first acceleration signal comprises measuring a distance between two maxima of said first signal.

48. (New) The method according to claim 41, wherein the step of deriving the cornering angle from the camber angle, the tyre load and the contact region length comprises the step of providing characteristic curves of the contact region versus the cornering angle for at least one tyre load.

49. (New) The method according to claim 48, further comprising providing a fit equation approximating the characteristic curves of the contact region versus the cornering angle.

50. (New) The method according to claim 49, wherein the step of providing a fit equation approximating the characteristic curves of the contact region versus the cornering angle comprises the step of providing the equation of a straight line in a plane, and further comprises associating values of slope and intercept for predetermined conditions of tyre load and camber angle for said tyre.

51. (New) A system for determining a cornering angle of a tyre fitted on a vehicle during running of said vehicle on a rolling surface, the tyre comprising an equatorial plane, comprising:

a device for measuring a length of a contact region between said tyre and said rolling surface, said length being measured at a distance from the equatorial plane;

a device for estimating a tyre load exerted on said tyre;

a device for estimating a camber angle to which said tyre is subjected; and

at least one processing unit adapted to derive the cornering angle from said camber angle, tyre load and contact region length.

52. (New) The system according to claim 51, wherein said measuring device comprises at least one radial accelerometer producing at least one radial acceleration signal.

53. (New) The system according to claim 51, wherein said measuring device comprises at least one tangential accelerometer producing at least one tangential acceleration signal.

54. (New) The system according to claim 51, wherein said device for estimating a tyre load exerted on said tyre comprises at least one radial accelerometer producing at least one radial acceleration signal.

55. (New) The system according to claim 51, wherein said device for estimating a tyre load exerted on said tyre comprises at least one tangential accelerometer producing at least one tangential acceleration signal.

56. (New) The system according to claim 51, wherein said measuring device and said device for estimating a tyre load exerted on said tyre comprises a sampling device adapted to sample said signal at a frequency of at least 5 kHz.

57. (New) The system according to claim 56, wherein said sampling device is adapted to sample said signal at a frequency of at least 7 kHz.

58. (New) The system according to claim 51, further comprising at least one memory associated with said processing unit.

59. (New) The system according to claim 58, wherein said at least one memory comprises pre-stored characteristic functions describing an expected contact region length versus cornering angle corresponding to predetermined conditions of tyre load and camber.

60. (New) The system according to claim 51, wherein said measuring device is included in a sensor device located in a tread area portion of said tyre.

61. (New) The system according to claim 60, wherein said sensor device is disposed at a distance of 15% to 30% of the tread width from the equatorial plane of the tyre.

62. (New) The system according to claim 60, wherein said sensor device is disposed at a distance of 18% to 28% of the tread width from the equatorial plane of the tyre.

63. (New) The system according to claim 60, wherein said sensor device is disposed at a distance of 20% to 25% of the tread width from the equatorial plane of the tyre.

64. (New) The system according to claim 60, wherein said sensor device is secured to an inner liner of the tyre.

65. (New) The system according to claim 64, comprising a damping element between said sensor and said inner liner.

66. (New) The system according to claim 60, wherein said sensor device further comprises a transmitting device.

67. (New) The system according to claim 66, wherein said transmitting device is operatively connected to a first antenna.

68. (New) The system according to claim 51, further comprising a filtering device adapted for low-pass filtering said acceleration signal.

69. (New) The system according to claim 60, wherein said sensor further comprises a power source.

70. (New) The system according to claim 69, wherein said power source comprises a battery.

71. (New) The system according to claim 69, wherein said power source comprises a self-powering device adapted to generate electrical power as a result of mechanical stresses undergone by said sensor device during running of said vehicle.

72. (New) The system according to claim 71, wherein said self-powering device comprises a piezoelectric element.

73. (New) The system according to claim 71, wherein said self-powering device comprises an electrical storage circuit.

74. (New) The system according to claim 73, wherein said electrical storage circuit comprises a resistor and a capacitor.

75. (New) The system according to claim 60, wherein said processing unit is included within said sensor device.

76. (New) The system according to claim 60, further comprising a fixed unit located on the vehicle, comprising a receiving device for receiving data from said sensor device.

77. (New) The system according to claim 76, wherein said receiving device comprises a second antenna.

78. (New) The system according to claim 67, wherein said first antenna and a second antenna are adapted for data transmission at a frequency of 400 to 450 MHz.

79. (New) A method of controlling a vehicle having at least one tyre fitted thereon, comprising:

determining a cornering angle of said tyre by the method according to claim 41;

passing said determined cornering angle to a vehicle control system of the vehicle; and

adjusting at least one parameter in said vehicle control system based on said determined cornering angle.

80. (New) The method according to claim 79, wherein said vehicle control system comprises a brake control system, and said step of adjusting at least one parameter comprises adjusting a braking force on said tyre.

81. (New) The method according to claim 79, wherein said vehicle control system comprises a steering control system, and said step of adjusting at least one parameter comprises selecting a maximum variation allowed from steering commands.

82. (New) The method according to claim 79, wherein the vehicle control system comprises a suspension control system, and said step of adjusting at least one parameter comprises adjusting stiffness of a suspension spring associated with said tyre.